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EXAMINER

LEURIG, SHARLENE L

ART UNIT PAPER NUMBER

2879

DATE MAILED: 05/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/893,554

Applicant(s)

SON, SUK MIN

Examiner

Sharlene Leurig

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 27 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-11 and 21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-11 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other

DETAILED ACTION

Drawings

1. The formal drawings that the Applicant referred to on page 4 of the Amendment, under the section entitled "Summary of the Response to the Office Action" appear to have not been submitted. Submission of formal drawings is required in response to this action.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Korea on December 22, 2000. It is noted, however, that applicant has not filed a certified copy of the Korean application as required by 35 U.S.C. 119(b).

Specification

3. The application papers are objected to because they are not a permanent copy as required by 37 CFR 1.52(a). Specifically, the specification is not on non-smearing paper. Reference is made to 37 CFR 1.52.

Applicant is required either (1) to submit permanent copies of the identified parts or (2) to order a photocopy of the above identified parts to be made by the Patent and Trademark Office at applicant's expense for incorporation in the file. See MPEP § 608.01.

Response to Amendment

The Amendment filed on March 27, 2003 has been entered and acknowledged by the Examiner. Claims 1 and 5 have been amended and claim 21 has been added.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1, 5 and 21 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for an intermediate product comprising a patterned layer including a plurality of grooves formed through the layer to expose portions of the second surface of the first substrate, does not reasonably provide enablement for a final product of a flat luminescent lamp having a patterned layer including a plurality of grooves formed through the layer to expose portions of the second surface of the first substrate. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to provide the invention commensurate in scope with these claims.

For the purposes of examination, the claim limitations relating to the patterned layer, including the grooves formed therein, will not be given patentable weight, and the claims will be examined to the exclusion of the non-enabled limitation. However, the grooves disclosed by the prior art of record will be acknowledged to better describe the invention of the prior art.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2879

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 5 and 9-10 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Morita et al. (5 ,831,374) (of record) in view of admitted prior art (admission).

Regarding claim 1, Morita discloses a flat luminescent lamp comprising a first substrate (Figure 1, element 1b) having a first surface and a second surface, a second substrate (1a) having a first surface disposed facing opposite to the first surface of the first substrate, and a plurality of grooves (21) formed on the second surface of the first substrate. The grooved unit and the second substrate may be in direct contact with each other, and therefore the plurality of grooves is formed on the second surface of the first substrate (column 7, line 40).

Regarding claim 2, the grooves are formed as a matrix unit with the first substrate. The discharge cells of the display panel are formed in a matrix array (column 3, lines 31-32) and the grooved unit is formed in a matrix pattern on the back surface of the display panel (column 5, lines 50-52).

Morita lacks disclosure of luminescent layers in the display. However, it is well known in the art to provide luminescent layers for display devices in order to create luminescent displays.

The applicant's admission of the prior art teaches a first and a second luminescent layer on opposing sides of the first and second substrates (Figure 2, elements 15 and 15a). Therefore regarding claim 1, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Morita's display with two

Art Unit: 2879

luminescent layers on opposing sides of the first and second substrates in order to provide a luminescent display device.

Regarding claim 3, Morita lacks disclosure of luminescent layers formed on first and second electrodes but does disclose multiple electrodes that produce discharge in the discharge cells (column 4, line 59).

The applicant's admission of the prior art teaches a first and a second electrode (13 and 13a) having luminescent layers (15 and 15a) formed on them. Therefore regarding claim 3, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Morita's display with two luminescent layers on opposing electrodes in order to provide a luminescent display device.

Regarding claim 5, Morita discloses a flat luminescent lamp comprising a first substrate (Figure 1, element 1b) having a first surface and a second surface, a second substrate (1a) having a first surface disposed facing opposite to the first surface of the first substrate, and a plurality of grooves (21) formed on the second surface of the first substrate. The grooved unit and the second substrate may be in direct contact with each other, and therefore the plurality of grooves is formed on the second surface of the first substrate (column 7, line 40).

Morita lacks explicit disclosure of electrodes formed on opposing surfaces of the first and second substrates but does disclose multiple electrodes that produce discharge in the discharge cells (column 4, line 59). Furthermore, Morita lacks disclosure of luminescent layers in the display. However, it is well known in the art to provide luminescent layers for display devices in order to create luminescent displays.

Art Unit: 2879

The applicant's admission of the prior art teaches a first and a second electrode (13 and 13a) having luminescent layers (15 and 15a) formed on them. Therefore regarding claim 5, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Morita's display with two luminescent layers on opposing electrodes in order to provide a luminescent display device.

Morita also lacks disclosure of a plurality of frame portions formed on the first surface of the first substrate and the first surface of the second substrate to seal the first substrate and the second substrate. However, it is well known in the art to seal the two substrates together by forming frames or spacers.

The applicant's admission of the prior art teaches the formation of a plurality of frame portions (Figure 2, elements 19a and 19b) in order to seal the first and second substrates. Therefore regarding claim 5, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Morita's display with a plurality of frame portions in order to seal the substrates together and provide stability to the substrate structure.

Regarding claim 9, Morita discloses a flat luminescent lamp comprising a first substrate (Figure 1, element 1b) and a second substrate (1a).

Morita lacks explicit disclosure of electrodes formed on opposing surfaces of the first and second substrates but does disclose multiple electrodes that produce discharge in the discharge cells (column 4, line 59). Morita further lacks disclosure of dielectric layers formed on the electrodes.

However, the use of dielectric layers formed on electrodes is well known in the art.

Art Unit: 2879

The applicant's admission of the prior art teaches the formation of two dielectric layers, one on each substrate formed over the electrodes (Figure 2, elements 12 and 12a). Therefore regarding claim 9, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Morita's display with dielectric layers formed over the electrodes on both substrates in order to insulate and secure the electrodes.

Regarding claim 10, Morita lacks a reflective layer formed on the first dielectric layer.

However, as admitted by the applicant, it is well known in the art to provide reflective layers to prevent the generated light from leaking toward a back surface of the lower plate.

The applicant's admission of the prior art teaches the formation of a reflective layer (Figure 2, element 14) on the first dielectric. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Morita's lamp with a reflective layer over the first dielectric layer to prevent leakage of the generated light toward the back surface of the display and therefore provide a more efficient lamp.

5. Claims 4, 6-8 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morita et al. (5,831,374) (of record) in view of admitted prior art (admission) as applied to claims 1-3, 5 and 9-10 above, and further in view of Sreeram et al. (6,140,759) (of record).

Regarding claims 4 and 6, Morita discloses a flat luminescent lamp comprising a first substrate (Figure 1, element 1b) having a first surface and a second surface and a second substrate (1a) having a first surface disposed facing opposite to the first surface

Art Unit: 2879

of the first substrate, both substrates being made of glass (column 4, line 56) but lacks a first substrate made of metal or ceramic.

However, it is well known in the art to improve the picture quality and processing of displays.

Sreeram teaches the use of a metal backplate (first substrate) in order to improve the processing of the plasma display panel (column 3, lines 59-62). Therefore regarding claims 4 and 6, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Morita's display with a first substrate made of metal in order to improve the processing of the display panel.

Regarding claim 7, Morita discloses a flat luminescent lamp with a first substrate including a first flat layer of a fixed area (Figure 4, element 1) but lacks a second layer that is a matrix. Morita does disclose a plurality of discharge cells.

However, it is well known in the art to provide barriers between discharge cells in order to improve on the quality of the picture and to prevent electrical conduction between the individual cells.

Sreeram teaches the formation of ceramic barrier ribs on the metal substrate (column 2, lines 50-51). The barrier ribs (the second layer of the first substrate) are formed of a matrix of regularly spaced ribs (Figure 3, the regular protrusions whose height is delineated by element 318).

Therefore regarding claim 7, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Morita's first substrate being a first layer of a flat fixed area with a second layer formed of a matrix, such as of barrier ribs, to improve picture quality.

Art Unit: 2879

Regarding claim 8 and 21, Morita lacks disclosure of an insulating layer formed on the first surface of the first substrate or electrodes formed on an insulating layer.

However, it is well known in the art to provide insulating layers between the electrodes and the substrate to prevent contaminant migration or to electrically isolate the electrode.

Sreeram teaches a separation between the electrode (Figure 3, element 310) and the substrate (110) via an insulating layer (112) formed on the first surface of the first substrate in order to protect the electrodes (column 11, lines 39- 41). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Morita's display with an insulating layer formed over the first substrate in order to protect both the substrate and the electrode.

The remaining limitations of claim 21, all of which are shared with claim 5, are obvious over Morita et al. (5,831,374) in view of admitted prior art (admission), as discussed above.

3. Claim 11 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Morita et al. (5,831,374) (of record) in view of admitted prior art (admission) as applied to claims 1-3, 5 and 7- 10 above, and further in view of Konishi et al. (5,957,743) (of record). Morita discloses a flat luminescent lamp with all the limitations discussed above, including electrodes, but lacks explicit disclosure of the material used to make the electrodes.

It is well known in the art to provide a transparent, conductive electrode such as one formed of indium tin oxide, so that the display picture is not obstructed by the electrodes formed on the display substrate.

Art Unit: 2879

Konishi teaches the use of a transparent, conductive material to form the display electrodes (column 1, lines 1 6-19). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Morita's display with transparent display (second) electrodes in order to provide a luminescent display with good picture quality.

Response to Arguments

5. Applicant's arguments filed on March 27, 2003 have been fully considered but they are not persuasive. The applicant has argued that the claimed invention is allowable over the prior art because none of the references provided teach or suggest the novel combination of features recited in amended independent claims 1 and 5 and new independent claim 21, namely the novel feature of a patterned layer including a plurality of grooves formed through the layer to expose portions of the second surface of the first substrate. However, the specification teaches such a patterned layer only in the intermediate product, the patterned layer being removed before final assembly of the lamp (page 10, paragraph 0033, lines 1-2). Therefore the patterned layer is not present in the final product, which the preamble language describes as being "a flat luminescence lamp".

For the purposes of examination, as explained under the section pertaining to rejections under 35 U.S.C. §112, the claim limitations directed to the intermediate product, namely the patterned layer, are not given patentable weight by the Examiner.

Thus, though the Examiner agrees that Morita et al. "does not disclose a patterned layer formed on the second surface of the first substrate, wherein the

Art Unit: 2879

patterned layer includes a plurality of grooves formed through the patterned layer to expose portions of the second surface of the first substrate, as recited by amended independent claim 1" (Paper no. 6, page 5, lines 18-21) and neither Sreeram et al. nor Konishi et al. "remedy the deficiencies noted above" (Paper no. 6, page 6, line 7), the rejection using the prior art of record is maintained.

The Examiner maintains that the prior art of record, namely Morita et al. (5,831,374), when combined with the applicant's own admission of prior art in the specification, Sreeram et al. (6,140,759) and Konishi et al. (5,957,743), does include all the limitations of the invention as originally claimed.

The elements of the prior art cited in the first rejection, namely the grooves formed on the first substrate, are discussed in the current rejection to better describe the embodiments of the prior art, despite the lack of patentable weight afforded to the grooves in the patterned layer in the amended claims.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

Art Unit: 2879

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharlene Leurig whose telephone number is (703)305-4745. The examiner can normally be reached on Monday through Friday, 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (703)305-4794. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7382 for regular communications and (703)308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Sharlene Leurig
May 16, 2003

SL

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